

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/062729 A3

(51) International Patent Classification: **H04B 7/06**,
H04L 27/26

Expo Apt.204-1304, Jeonmin-dong, Yuseong-gu, Daejeon-city, 305-390 (KR). CHOI, Jin-Ho [AU/AU]; 26, Holland Place Dundas, NSW, 2117 (AU).

(21) International Application Number:
PCT/KR2004/003065

(74) Agent: **YOU ME PATENT AND LAW FIRM**; Seolim Bldg., 649-10, Yoksam-dong, Kangnam-ku, Seoul 135-080 (KR).

(22) International Filing Date:
25 November 2004 (25.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2003-0098217
27 December 2003 (27.12.2003) KR
10-2003-0098216
27 December 2003 (27.12.2003) KR

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (for all designated States except US): **ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE [KR/KR]**; 161, Gajeong-dong, Yuseong-gu, Daejeon, 305-350 (KR).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

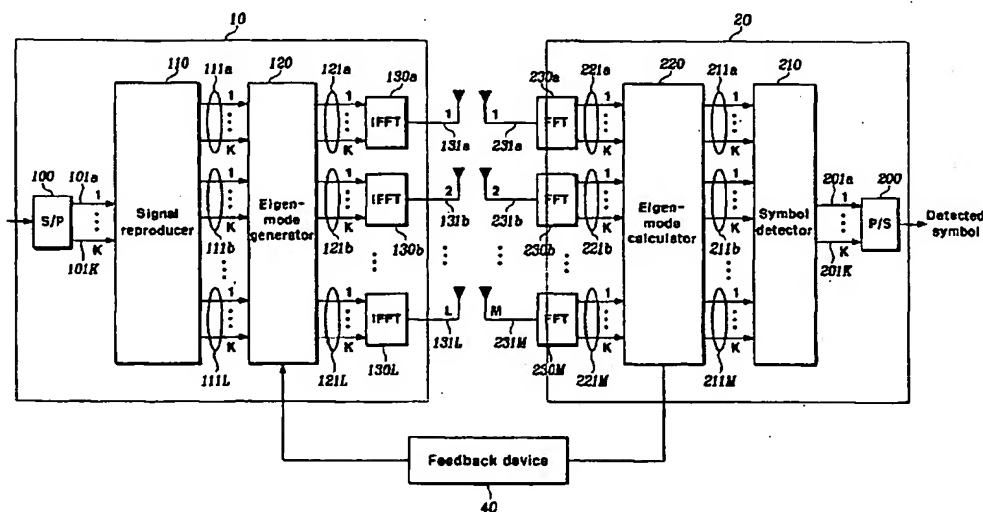
(75) Inventors/Applicants (for US only): **CHOI, In-Kyeong [KR/KR]**; Mokryun Apt. 304-1102, Dunsan-dong, Seo-gu, Daejeon-city, 302-120 (KR). **KIM, Seong-Rag [KR/KR]**; Expo Apt. 204-601, Jeonmin-dong, Yuseong-gu, Daejeon-city, 305-390 (KR). **KWON, Dong-Seung [KR/KR]**;

Published:

— with international search report

[Continued on next page]

(54) Title: A MIMO-OFDM SYSTEM USING EIGENBEAMFORMING METHOD



(57) Abstract: Disclosed is a MIMO-OFDM system, wherein the transmitter comprises a serial/parallel converter for converting continuously inputted symbols of the number of subcarriers to K parallel signals; a signal reproducer for reproducing K parallel signals by the number of transmit antennas L; an eigenmode generator for generating eigenbeam of the reproduced signals outputted from the signal reproducer at each subcarrier, on the basis of Nf eigenbeam forming vectors which are fed back long-term and information of a best eigenbeam forming vector at each subcarrier which is fed back short-term, through the feedback device; and a plurality of inverse Fourier converters for receiving the signals outputted from the eigenmode generator and generating an OFDM symbol.



— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
26 January 2006